EM-SPRINT-085-130322
474 MAIN STREET
MONROE

Alcatel·Lucent

1 Robbins Road
Westford, MA 01886

RECEIVED
JUL 10 2014
CONNECTICUT
SITING COUNCIL

July 9, 2014

State of Connecticut
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notification of Construction Completion on telecommunication facilities

To whom it may concern:

Alcatel Lucent hereby acknowledges that the list of attached sites have completed construction per the approval granted on the specified date. Please advise if further information is needed..

Very truly yours,

Martha Powers

Martha Powers
Lead Development Manager
Alcatel-Lucent
Sprint Vision Project
1 Robbins Road
Westford, MA 01886

Cc: FST, Siterra

EM/TS #	Address	Town	Sprint ID	Decision Date
EM-SPRINT-062-130912	1065 Wintergreen Avenue	Hamden	CT03XC003	10/15/2013
EM-SPRINT-NEXTEL-060-130118	10 Tanner Marsh Road	Guilford	CT03XC022	2/14/2013
EM-SPRINT-004-130822	181 Montevideo Road	Avon	CT03XC053	9/6/2013
EM-SPRINT-NEXTEL-155-130214A	1358 New Britain Ave.	West Hartford	CT03XC057	3/1/2013
EM-SPRINT-NEXTEL-164-130201	440 Hayden Station Road	Windsor	CT03XC065	3/8/2013
EM-SPRINT-NEXTEL-132-130201	59 McGuire Road	South Windsor	CT03XC066	3/1/2013
EM-SPRINT-NEXTEL-054-130201	299 Paxton Way	Glastonbury	CT03XC081	3/1/2013
EM-SPRINT-NEXTEL-094-130214B	36 Prospect Street	Newington	CT03XC084	3/1/2013
EM-SPRINT-110-130725	10 Sparks Street	Plainville	CT03XC086	8/8/2013
EM-SPRINT-007-130314	260 Beckley Road	Kensington	CT03XC088	4/5/2013
EM-SPRINT-NEXTEL-155-130201	570 New Park Avenue	West Hartford	CT03XC091	3/1/2013
EM-SPRINT-NEXTEL-106-130201	430 Middlesex Turnpike	Old Saybrook	CT03XC102	3/1/2013
EM-SPRINT-NEXTEL-105-130201	30 Short Hills Road	Old Lyme	CT03XC104	3/1/2013
EM-SPRINT-NEXTEL-152-130201	41 Manitock Hill Road	Waterford	CT03XC105	3/1/2013
EM-SPRINT-NEXTEL-045-130201	93 Roxbury Road	East Lyme	CT03XC110	3/1/2013
EM-SPRINT-152-130114	45R Fargo Road	Waterford	CT03XC112	2/14/2013
EM-SPRINT-NEXTEL-027-130201	48 Cow Hill Road	Clinton	CT03XC156	3/1/2013
EM-SPRINT-NEXTEL-082-130201	238 Meridan Road	Middlefield	CT03XC160	3/8/2013
EM-SPRINT-047-130109	160 Plantation Road	East Windsor	CT03XC202	2/7/2013
EM-SPRINT-NEXTEL-077-130214	53 Slater Street	Manchester	CT03XC211	3/1/2013
EM-SPRINT-142-130109	497 Old Post Road	Tolland	CT03XC212	2/7/2013
EM-SPRINT-NEXTEL-042-130222	94 East High Street	East Hampton	CT03XC335	3/8/2013
EM-SPRINT-057-121226	Butternut Hollow Road	Greenwich	CT03XC343	1/11/2013
EM-SPRINT-158-130213	515 Boston Post Road	Westport	CT03XC355	3/1/2013
EM-SPRINT-046-130402	206 Everett Road	Easton	CT03XC362	4/19/2013
EM-SPRINT-085-130322	474 MAIN STREET	MONROE	CT03XC365	4/5/2013
EM-SPRINT-086-131011	57 Cook Drive	Montville	CT03XC365	10/25/2013
EM-SPRINT-118-130322	76 EAST RIDGE	RIDGEFIELD	CT03XC370	4/5/2013
EM-SPRINT-097-131230	20 Barnabas Road	Newtown	CT03XC383	1/21/2014
EM-SPRINT-051-130207	3965 Congress Street	Fairfield	CT03XC385	3/1/2013
EM-SPRINT-NEXTEL-094-130214A	123 Costello Road	Newington	CT23XC555	3/1/2013
EM-SPRINT-119-131008	699 Old Main Street	Rocky Hill	CT23XC556	10/25/2013
EM-SPRINT-077-131008	60 Adams Street	Manchester	CT23XC557	10/25/2013
EM-SPRINT-NEXTEL-080-130123	462 West Main Street	Meriden	CT25XC840	2/14/2013
EM-SPRINT-096-130920	18 Hilltop View Lane	New Milford	CT33XC095	10/4/2013
EM-SPRINT-157-130213	237 Godfrey Road	Weston	CT33XC522	3/1/2013
EM-SPRINT-018-131008	20 Vale Road	Brookfield	CT33XC525	10/25/2013
EM-SPRINT-077-130528	595 Keeney Street	Manchester	CT33XC538	6/14/2013
EM-SPRINT-NEXTEL-129-130214	400 Main Street	Somers	CT33XC554	3/1/2013
EM-SPRINT-047-130322	15 CHAMBERLAIN	BROADBROOK	CT33XC565	4/5/2013
EM-SPRINT-004-130502	277 Huckleberry Road	Avon	CT33XC589	5/17/2013

EM-SPRINT-143-130604	218 Wheeler Road	Torrington	CT33XC592	6/28/2013
EM-SPRINT-140-130724	583 Chapel Street	Thomaston	CT33XC603	8/8/2013
EM-SPRINT-103-130920	Charles Marshall Drive	Norwalk	CT33XC802	10/4/2013
EM-SPRINT-NEXTEL-064-130214	439-455 Homestead Ave.	Hartford	CT43XC805	3/1/2013
EM-SPRINT-064-130311	99 Meadow Street	Hartford	CT43XC806	4/5/2013
EM-SPRINT-083-131127	290 Preston Ave.	Middletown	CT43XC816	12/16/2013
EM-SPRINT-128-130920	530 Bushy Hill Road	Simsbury	CT43XC825	10/4/2013
EM-SPRINT-164-130405A	340 Bloomfield Avenue	Windsor	CT43XC826	4/19/2013
EM-SPRINT-077-130109	239 Middle Turnpike	Manchester	CT43XC827	2/13/2013
EM-SPRINT-165-130118	2-4 Volunteer Drive	Windsor Locks	CT43XC828	2/14/2013
EM-SPRINT-NEXTEL-139-130214	44 Fyler Place	Suffield	CT43XC829	3/8/2013
EM-SPRINT-111-130712	171 Town Hill Road	Plymouth	CT54XC712	7/26/2013
EM-SPRINT-009-130322	38 Spring Hill Road	Bethel	CT54XC749	4/5/2013
EM-SPRINT-154-131011	315 Spencer Plains Road	Westbrook	CT54XC758	10/25/2013
EM-SPRINT-023-130405	14 Canton Springs Road	Canton	CT54XC760	4/19/2013
EM-SPRINT-104-130606	153 Old Salem Road	Norwich	CT54XC775	6/28/2013
EM-SPRINT-164-130405B	99 Day Hill Road	Windsor	CT54XC787	4/19/2013
EM-SPRINT-132-130920	300 Governor's Highway	South Windsor	CT60XC014	10/4/2013
EM-SPRINT-094-130108	605 Willard Avenue	Newington	CT60XC018	1/25/2013
EM-SPRINT-146-130506	197 South Street	Vernon	CT60XC935	5/24/2013
EM-SPRINT-146-130311	777 Talcottville Road	Vernon	CT70XC147	4/5/2013
EM-SPRINT-126-130531	62 Birdseye Road	Shelton	CT73XC004	6/21/2013

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

April 5, 2013

Jennifer Young Gaudet
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-SPRINT-085-130322** – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 474 Main Street, Monroe, Connecticut.

Dear Ms. Gaudet:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated March 21, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the

closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Stephen Vavrek, First Selectman, Town of Monroe
William Agresta, Planning Administrator, Town of Monroe
Crown Castle

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

March 22, 2013

The Honorable Stephen Vavrek
First Selectman
Town of Monroe
7 Fan Hill Road
Monroe, CT 06468-1800

RE: **EM-SPRINT-085-130322** – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 474 Main Street, Monroe, Connecticut.

Dear First Selectman Vavrek:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by April 5, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/cm

c: David Killeen, Planning Administrator, Town of Monroe

CSC
CONNECTICUT SITING COUNCIL

HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT, 06811
P.: 203.797.1112

EM-SPRINT-085-130322

HPC WIRELESS SERVICES

March 21, 2013

VIA OVERNIGHT COURIER

RECEIVED
MAR 22 2013
CONNECTICUT
SITING COUNCIL

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Linda Roberts, Executive Director

Re: Sprint Spectrum, L.P. – exempt modification
474 Main Street, Monroe, Connecticut

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of Sprint Spectrum, L.P. ("Sprint"). Sprint is undertaking modifications to certain existing sites in its Connecticut system in order to implement updated technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the First Selectman of the Town of Monroe.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at 474 Main Street in the Town of Monroe (coordinates 41°-19'-32", 73°-15'-57"). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to Sprint's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. Sprint will replace six (6) existing CDMA antennas with three (3) dual-pole CDMA antennas and three (3) dual-band panel antennas at the existing center line of approximately 152'. Six (6) RRHs (remote radio heads) will be mounted to the pole below the antennas. Sprint will also install three (3) hybriflex cables along the existing

coaxial cable run. After an interim period of up to one year, the three CDMA antennas and the existing coaxial cable will be removed. The proposed modifications will not extend the height of the approximately 191.5' structure.

2. The proposed changes will not extend the site boundaries. Sprint will replace two (2) existing cabinets, add one cabinet and add a fiber distribution box on unistruts on the concrete pad. These changes will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standards for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, Sprint's operations at the site will result in a power density of approximately 10.497%; the combined site operations will result in a total power density of approximately 40.967%.

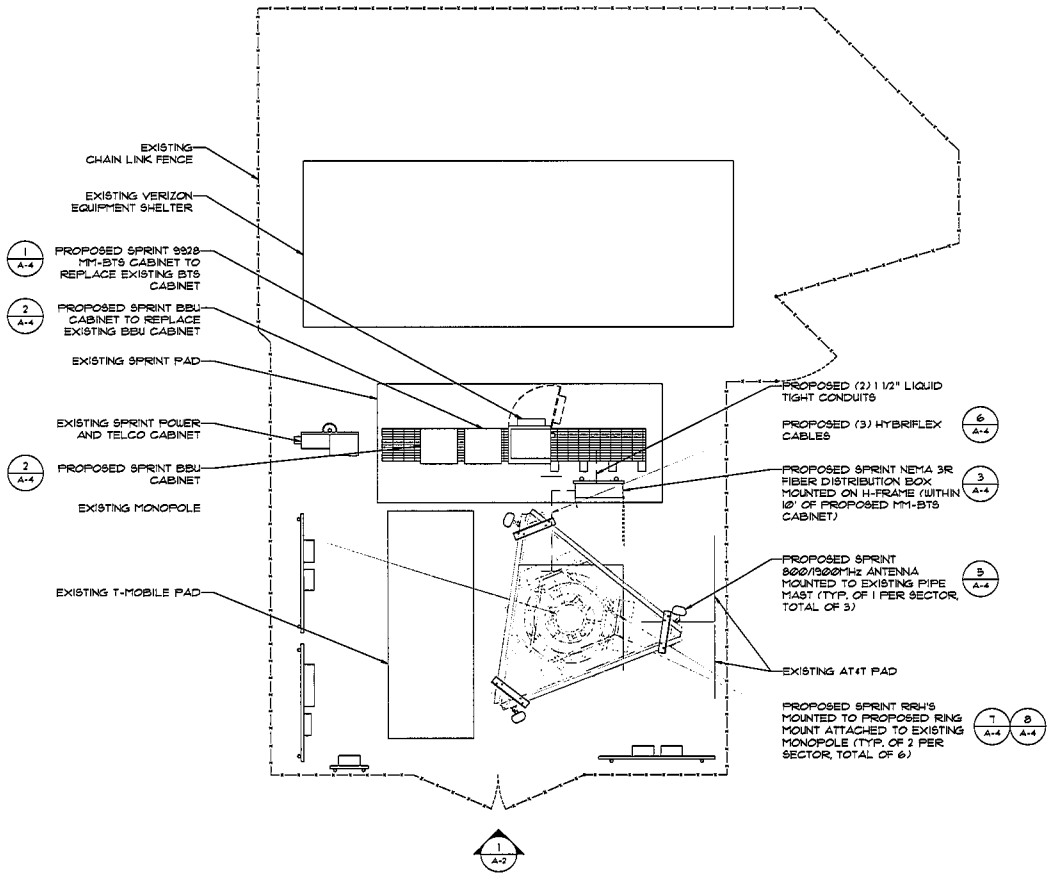
Please feel free to contact me by phone at (860) 798-7454 or by e-mail at jgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

Respectfully yours,

Jennifer Young Gaudet

Jennifer Young Gaudet

cc: Honorable Steve Vavrek, First Selectman, Town of Monroe
Birdseys Plain LLC (underlying property owner)



ANTENNA CONFIGURATION NOTE

ALL EXISTING CDMA ANTENNAS TO BE REMOVED / REPLACED WITH NETWORK VISION ANTENNAS FOR FINAL CONFIGURATION.

ANTENNA SEPARATION TO BE FIELD VERIFIED BY THE GENERAL CONTRACTOR.

STRUCTURAL VERIFICATION BY GENERAL CONTRACTOR

GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS REPORTS PREPARED BY PAUL J. FORD AND COMPANY ENTITLED "STRUCTURAL MODIFICATION REPORT" DATED 10/1/2012, PAUL J. FORD AND COMPANY PROJECT: 31512-2463 (FOR THE TOWER), AND BY EBI CONSULTING ENTITLED "STRUCTURAL ASSESSMENT LETTER" DATED 8/24/2012 EBI CONSULTING'S PROJECT NUMBER: 81121609 (FOR THE MOUNTS).

1. EXISTING ANTENNA MOUNT ASSEMBLY MEMBER SIZES AND CONNECTIONS ARE ASSUMED TO BE AS SHOWN ON THE ORIGINAL CONSTRUCTION DOCUMENTS. GENERAL CONTRACTOR TO VERIFY THE ABOVE IN THE FIELD AND REPORT ANY VARIANCES TO THE ENGINEER OF RECORD PRIOR TO ANY INSTALLATION WORK BEING PERFORMED.
2. IT IS THE GENERAL CONTRACTOR'S/INSTALLER'S RESPONSIBILITY PRIOR TO INSTALLATION OF THE EQUIPMENT TO INSPECT AND VERIFY THAT THE EXISTING ANTENNA MOUNT ASSEMBLY IS IN GOOD CONDITION, IN GOOD WORKING ORDER AND INSTALLED ACCORDING TO THE MANUFACTURER'S ASSEMBLY DRAWINGS AND SPECIFICATIONS. IF ANY COMPONENTS ARE FOUND TO BE DEFECTIVE, INCLUDING MISSING OR LOOSE BOLTS/ANCHORS, REPORT SUCH DEFECTS IMMEDIATELY PRIOR TO INSTALLATION.

NOTES:

- ANTENNA BUSS BARS SHOULD BE INSTALLED DIRECTLY TO TOWER STEEL WITHOUT INCLUDING INSULATORS OR DOWN CONDUCTORS.
- ALL MOUNTS ANTENNAS AND COAX TO BE INSALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE.
- CONTRACTOR TO VERIFY A PASSING SIGNED AND SEALED ANTENNA MOUNT/PLATFORM STRUCTURAL ANALYSIS HAS BEEN COMPLETED FOR INTERIM AND FINAL RF CONFIGURATION. NO ANTENNA MOUNT/PLATFORM MODIFICATIONS SHOULD COMMENCE OR INSTALLATION OF ANTENNAS, RRH OR TOWER MOUNTED EQUIPMENT WITHOUT VERIFYING THE MOUNT/PLATFORM ANALYSIS HAS BEEN COMPLETED FOR THE SPECIFIC LOADING. ADDITIONALLY ALL MOUNTS ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH TOWER STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE.
- OVERALL VERTICAL SPRINT LEASED AREA OF 8' NOT TO BE EXCEEDED.

1 COMPOUND PLAN

SCALE = 1/4" = 1'-0"

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
P: 800-357-7641

Alcatel·Lucent
600-700 MOUNTAIN AVE
MURRAY HILL, NJ 07974

Salient ARCHITECTS, LLC
New Jersey Office:
6 East Palisade Avenue
Englewood, NJ 07631
P: 201-567-0032 - F: 201-567-9556

PAUL CIONFRIDDO P.E.
CT # 13868

THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF SALIENT ASSOCIATES, LLC AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE"

SUBMITTALS

NO	DATE	DESCRIPTION	BY
1	9/24/12	PRELIMINARY	NAB
2	11/9/12	REVISED PER COMMENTS	JMP
3	01/24/13	REVISED PER COMMENTS	AD

SITE NUMBER:
CT03XC365
SITE NAME:
UPPER STEPNEY - TLC
(CROWN BU # 876355)
SITE ADDRESS:
474-480 MAIN STREET
MONROE, CT 06468

SHEET TITLE:
COMPOUND PLAN

SALIENT PROJ. NO:	SHEET NO:
CT03XC365	A-1
DATE:	
CHECKED BY: ADC	

ANTENNA CONFIGURATION NOTE

ALL EXISTING CDMA ANTENNAS TO BE REMOVED / REPLACED WITH NETWORK VISION ANTENNAS FOR FINAL CONFIGURATION.

ANTENNA SEPARATION TO BE FIELD VERIFIED BY THE GENERAL CONTRACTOR.

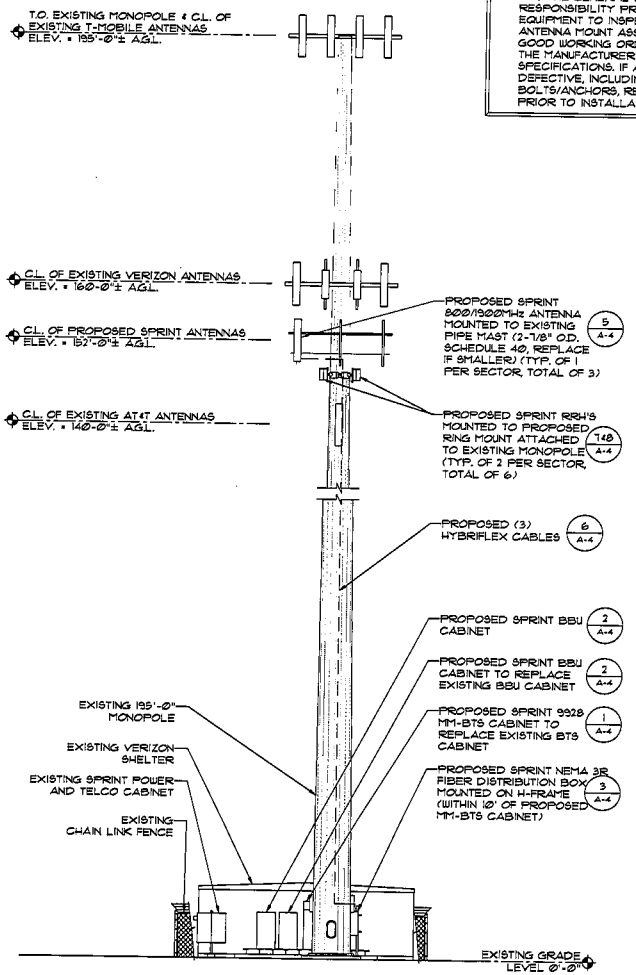
NOTE

ANTENNA BUSS BARS SHOULD BE INSTALLED DIRECTLY TO TOWER STEEL WITHOUT INCLUDING INSULATORS OR DOWN CONDUCTORS.

STRUCTURAL VERIFICATION BY GENERAL CONTRACTOR

GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS REPORTS PREPARED BY TOWER ENGINEERING PROFESSIONALS ENTITLED "STRUCTURAL ANALYSIS REPORT" DATED 08/09/2012. TOWER ENGINEERING PROFESSIONALS PROJECT: 125912 (FOR THE TOWER) AND BY EBI CONSULTING ENTITLED "STRUCTURAL ASSESSMENT LETTER" DATED 8/24/2012 EBI CONSULTING'S PROJECT NUMBER: 81216003 (FOR THE MOUNTS).

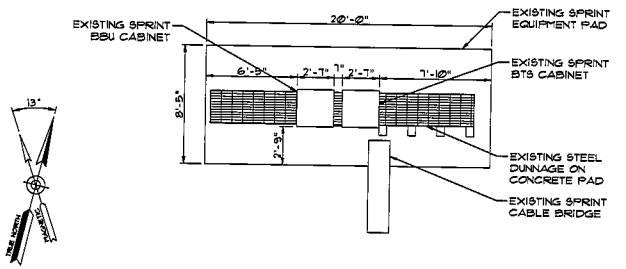
1. EXISTING ANTENNA MOUNT ASSEMBLY MEMBER SIZES AND CONNECTIONS ARE ASSUMED TO BE AS SHOWN ON THE ORIGINAL CONSTRUCTION DOCUMENTS. GENERAL CONTRACTOR TO VERIFY THE ABOVE IN THE FIELD AND REPORT ANY VARIANCES TO THE ENGINEER OF RECORD PRIOR TO ANY INSTALLATION WORK BEING PERFORMED.
2. IT IS THE GENERAL CONTRACTOR'S/INSTALLER'S RESPONSIBILITY PRIOR TO INSTALLATION OF THE EQUIPMENT TO INSPECT AND VERIFY THAT THE EXISTING ANTENNA MOUNT ASSEMBLY IS IN GOOD CONDITION, IN GOOD WORKING ORDER AND INSTALLED ACCORDING TO THE MANUFACTURER'S ASSEMBLY DRAWINGS AND SPECIFICATIONS. IF ANY COMPONENTS ARE FOUND TO BE DEFECTIVE, INCLUDING MISSING OR LOOSE BOLTS/ANCHORS, REPORT SUCH DEFECTS IMMEDIATELY PRIOR TO INSTALLATION.



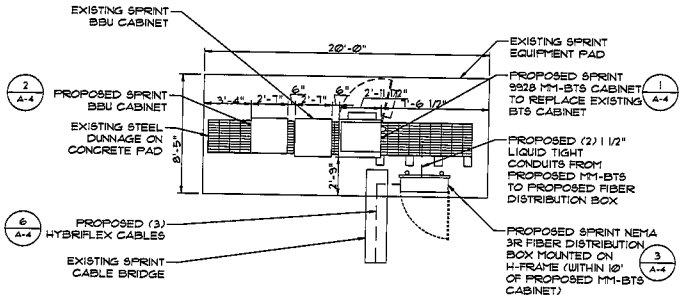
1 NORTHEAST ELEVATION

SCALE = 1/8" = 1'-0"

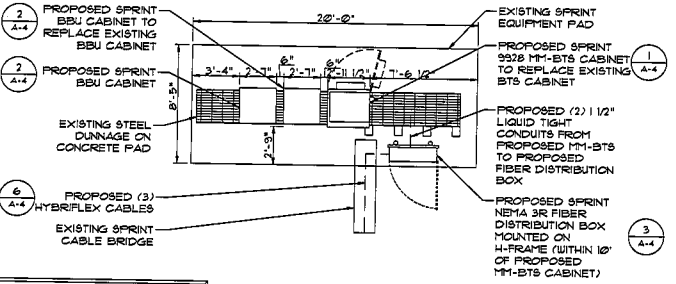
EXISTING EQUIPMENT LAYOUT



INTERIM EQUIPMENT LAYOUT



FINAL EQUIPMENT LAYOUT



EQUIPMENT CABINET CONFIGURATION

EXISTING LAYOUT: 2 CABINETS
PROPOSED LAYOUT: 3 CABINETS

2 ENLARGED EQUIPMENT CABINET LAYOUT

SCALE = 1/4" = 1'-0"

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
P: 800-357-7641

Alcatel·Lucent
600-700 MOUNTAIN AVE
MURRAY HILL, NJ 07974

Salient ARCHITECTS, LLC
New Jersey Office:
8 East Palisade Avenue
Englewood, NJ 07631
P: 201-567-0032 - F: 201-567-9556

PAUL GIONFRIDDO P.E.
CT # 13668

THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF SALIENT ASSOCIATES, LLC. AND FOR THE EXCLUSIVE USE BY THIS TITLE CLIENT. DUPLICATION OR USE WITHOUT THIS EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE"

SUBMITTALS

NO	DATE	DESCRIPTION	BY
1	5/24/12	PRELIMINARY	NAS
2	7/16/12	REVISED PER COMMENTS	JHP
3	01/24/13	REVISED PER COMMENTS	AD

SITE NUMBER: CT03XC365

SITE NAME: UPPER STEPNEY - TLC (CROWN BU # 816355)

SITE ADDRESS: 474-480 MAIN STREET MONROE, CT 06468

SHEET TITLE: ELEVATION & ENLARGED EQUIPMENT CABINET LAYOUT

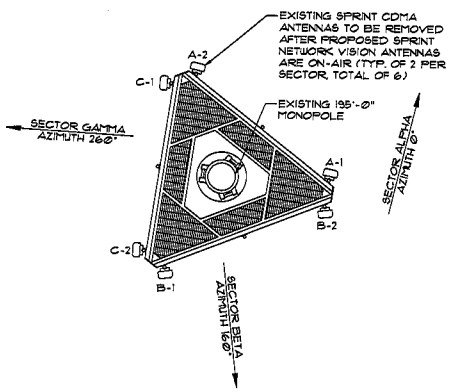
SALIENT PROJ. NO: CT03XC365

DATE:

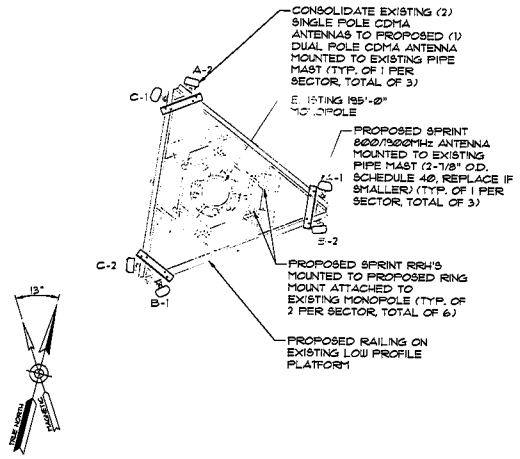
CHECKED BY: ADC

SHEET NO: A-2

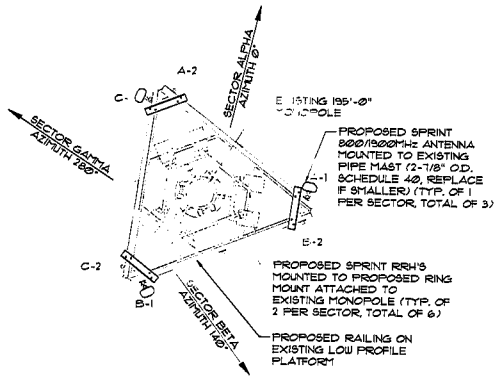
EXISTING ANTENNA PLAN



INTERIM ANTENNA PLAN



FINAL ANTENNA PLAN



1 ANTENNA SCENARIO

SCALE = N.T.S.

	POSITION	ANTENNA STATUS	FREQUENCY (MHZ)	ANTENNA MAKE	ANTENNA MODEL	AZIMUTHS EXISTING (FOR REFERENCE)	AZIMUTHS PROPOSED	MECHANICAL DOWN TILT	ELECTRICAL DOWN TILT	RAD CENTER (A.G.L.)	*HYBRIFLEX CABLE LENGTH (FT.)	RRH MODEL	TOP COAX JUMPER SIZE (IN.)	*TOP COAX JUMPER LENGTH (FT.)	TOP COAX JUMPER MAKE	TOP COAX JUMPER MODEL	COMBINER	*COMBINER JUMPER LENGTH (FT.)	ANTENNA COLOR CODING
ALPHA	A-1	PROPOSED	800/1900	RFS	APXVSPP18-C-A20	Ø°	Ø°	Ø°	-1°	152'-Ø"	170	(1) 800MHz	1/2	10	RFS	(2) LCF12-50J	--	--	TBD
								Ø°	Ø°			(1) 1900MHz	1/2	10	RFS	(4) LCF12-50J	--	--	
BETA	B-1	PROPOSED	800/1900	RFS	APXVSPP18-C-A20	160°	140°	Ø°	-2°	152'-Ø"	170	(1) 800MHz	1/2	10	RFS	(2) LCF12-50J	--	--	TBD
								Ø°	-1°			(1) 1900MHz	1/2	10	RFS	(4) LCF12-50J	--	--	
GAMMA	C-1	PROPOSED	800/1900	RFS	APXVSPP18-C-A20	260°	280°	Ø°	-1°	152'-Ø"	170	(1) 800MHz	1/2	10	RFS	(2) LCF12-50J	--	--	TBD
								Ø°	Ø°			(1) 1900MHz	1/2	10	RFS	(4) LCF12-50J	--	--	

* CONTRACTOR TO FIELD VERIFY ALL CABLE/JUMPER LENGTHS AGAINST CURRENT B.O.M.

2 RF SYSTEM SCHEDULE

SCALE = N.T.S.

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
P: 800-357-7641

Alcatel·Lucent
600-700 MOUNTAIN AVE
MURRAY HILL, NJ 07974

Salient ARCHITECTS, LLC
New Jersey Office:
8 East Palisade Avenue
Englewood, NJ 07631
P: 201-567-0032 - P: 201-567-9556

PAUL GIONFRIDDO P.E.
CT # 13866

THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF SALIENT ASSOCIATES, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED

DRAWING SCALES ARE INTENDED FOR 24"X36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE"

SUBMITTALS

NO	DATE	DESCRIPTION	BY
1	5/24/12	PRELIMINARY	NAS
2	7/10/12	REVISED PER COMMENTS	JNP
3	01/24/13	REVISED PER COMMENTS	AD

SITE NUMBER: CT03XC365
SITE NAME: UPPER STEPNEY - TLC (CROWN BU # 816355)
SITE ADDRESS: 474-480 MAIN STREET MONROE, CT 06468

SHEET TITLE: ANTENNA SCENARIO AND RF SYSTEM SCHEDULE

SALIENT PROJ. NO: CT03XC365
DATE:
CHECKED BY: ADC
SHEET NO: A-3

Date: **August 9, 2012**

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430
(201)-236-9094

Tower Engineering Professionals
3703 Junction Blvd.
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate *SNV* Interim**	
	Carrier Site Number:	CT03XC365
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	876355
	Crown Castle Site Name:	Upper Stepney-TLC
	Crown Castle JDE Job Number:	198356
	Crown Castle Work Order Number:	517337
	Crown Castle Application Number:	157251, Rev.1
Engineering Firm Designation:	**TEP Project Number:**	125912
Site Data:	**474-480 Main St., Monroe, Fairfield County, CT 06468** **Latitude *41° 19' 31.99"*, Longitude *-73° 15' 57.05"*** **191.5 Foot - Monopole Tower**	

Dear Veronica Harris,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 480348, in accordance with application 157251, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Existing + Interim Equipment (Existing + Proposed) **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, ASCE 7-05 Minimum Design Loads for Buildings and Other Structures and 2005 Connecticut State Building Code (with 2009 amendments) based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Crown Castle*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Matthew C. Kirchner / DTS

Respectfully submitted by:

Pete Jernigan, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 191.5-ft monopole tower designed by Engineered Endeavors Inc. in October of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. TEP did not visit the site. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and ASCE 7-05 Minimum Design Loads for Buildings and Other Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch escalating ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	152.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	3	1-1/4	1
		9	RFS Celwave	ACU-A20-N			
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe			

Notes:
1) See "Appendix B – Base Level Drawing" for assumed feed line configuration.

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
191.5	194.0	12	EMS Wireless	RR90-17-02DP w/ Mount Pipe	24	1-5/8	1
		6	Generic	TMA			
	191.5	1	Tower Mounts	T-Arm Mount [TA 602-3]			
160.0	160.0	2	Antel	BXA-171063-12BF w/ Mount Pipe	12	1-5/8	1
		1	Antel	BXA-171063-8BF-2 w/ Mount Pipe			
		2	Antel	BXA-70063-6CF-2 w/ Mount Pipe			
		1	Antel	BXA-70063/4CF w/ Mount Pipe			
		4	Antel	LPA-80063/6CF w/ mount pipe			
		2	Antel	LPA-80080/4CF w/ Mount Pipe			
		6	RFS Celwave	FD9R6004/2C-3L			
		1	Tower Mounts	Platform Mount [LP 303-1]			
150.0	152.0	6	Decibel	DB980H65E-M w/ Mount Pipe	6	1-5/8	1
	150.0	1	Tower Mounts	Platform Mount [LP 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
140.0	140.0	3	Ericsson	RRUS-11	1 2 6	3/8 5/8 1-1/4	1
		6	Powerwave Technologies	LGP21401			
		1	Raycap	DC6-48-60-18-8F			
		3	Powerwave Technologies	7770.00 w/ Mount Pipe			
		3	Powerwave Technologies	P65-16-XLH-RR w/ Mount Pipe			
		1	Tower Mounts	Platform Mount [LP 601-1]			
50.0	52.0	1	Kathrein	OG-860/1920/GPS-A	1	1/2	1
	50.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
191.5	191.5	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
181.5	181.5	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
171.5	171.5	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
161.5	161.5	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
150.0	150.5	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
140.0	140.0	12	Dapa	48000	-	-
		1	Tower Mounts	Low Profile Platform		
50.0	50.0	1	Generic	GPS Antenna	-	-
		1	Tower Mounts	Standoff		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Reports	Dr. Clarence Welti, P.E., P.C.	1531885	CCISites
Tower Manufacturer Drawings/Design/Specs	Engineered Endeavors, Inc.	1631582	CCISites
Tower Foundation Drawings/Design/Specs	Engineered Endeavors, Inc.	1631625	CCISites
Previous Structural Analysis	Tower Engineering Professionals	2970649	CCISites

3.1) Analysis Method

tnxTower (version 6.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) The tower and foundation were built in accordance with the manufacturer's specifications.
2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by the standard.
5) All tower components are in sufficient condition to carry their full design capacity.
6) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
L1	191.5 - 172.46	Pole	TP20.46x15.5x0.188	1	-1.772	602.356	28.2	Pass
L2	172.46 - 127.753	Pole	TP31.6x19.282x0.313	2	-11.142	1553.518	60.7	Pass
L3	127.753 - 83.0833	Pole	TP42.19x29.815x0.438	3	-20.952	2908.153	66.1	Pass
L4	83.0833 - 40.4567	Pole	TP52.59x39.847x0.5	4	-34.369	4143.924	63.6	Pass
L5	40.4567 - 0	Pole	TP62x49.727x0.5	5	-40.041	4302.990	66.3	Pass
							Summary	
						Pole (L5)	66.3	Pass
						RATING =	**66.3**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	58.7	Pass
1	Base Plate	-	79.1	Pass
1	Base Foundation Soil Interaction	-	64.9	Pass
1	Base Foundation Structural	-	71.8	Pass

Structure Rating (max from all components) =	79.1

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

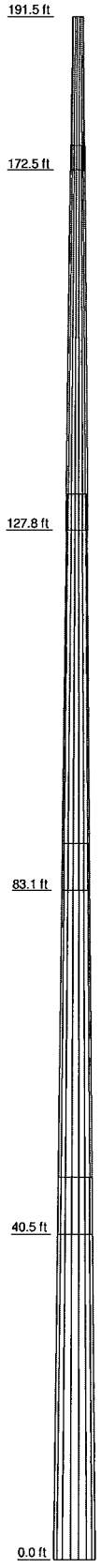
4.1) Recommendations

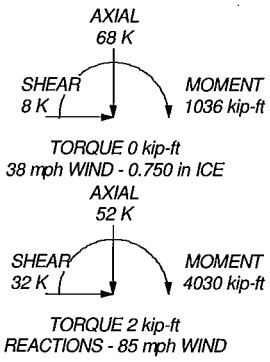
1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	5	4	3	2	1
Length (ft)	47.540	48.460	49.170	47.790	19.040
Number of Sides	18	18	18	18	18
Thickness (in)	0.500	0.500	0.438	0.313	0.188
Socket Length (ft)		7.083	5.833	4.500	3.083
Top Dia (in)	49.727	39.847	29.815	19.282	15.500
Bot Dia (in)	62.000	52.590	42.190	31.600	20.460
Grade	A572-65				
Weight (K)	39.2	14.2	12.0	8.3	4.1	0.7





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 5/8" x 4'	191.5	800 EXTERNAL NOTCH FILTER	150
(4) RR90-17-02DP w/ Mount Pipe	191.5	800 EXTERNAL NOTCH FILTER	150
(4) RR90-17-02DP w/ Mount Pipe	191.5	800 EXTERNAL NOTCH FILTER	150
(4) RR90-17-02DP w/ Mount Pipe	191.5	Platform Mount [LP 601-1]	150
(2) TMA	191.5	8' Ladder	150
(2) TMA	191.5	(2) 6' x 2" Mount Pipe	150
(2) TMA	191.5	(2) 6' x 2" Mount Pipe	150
T-Arm Mount [TA 602-3]	191.5	(2) 6' x 2" Mount Pipe	150
(2) LPA-80080/4CF w/ Mount Pipe	160	7770.00 w/ Mount Pipe	140
(2) LPA-80063/6CF w/ mount pipe	160	P65-16-XLH-RR w/ Mount Pipe	140
(2) LPA-80063/6CF w/ mount pipe	160	7770.00 w/ Mount Pipe	140
BXA-70063-6CF-2 w/ Mount Pipe	160	P65-16-XLH-RR w/ Mount Pipe	140
BXA-70063-6CF-2 w/ Mount Pipe	160	7770.00 w/ Mount Pipe	140
BXA-70063/4CF w/ Mount Pipe	160	P65-16-XLH-RR w/ Mount Pipe	140
BXA-171063-12BF w/ Mount Pipe	160	(2) LGP21401	140
BXA-171063-12BF w/ Mount Pipe	160	(2) LGP21401	140
BXA-171063-8BF-2 w/ Mount Pipe	160	(2) LGP21401	140
(2) FD9R6004/2C-3L	160	RRUS-11	140
(2) FD9R6004/2C-3L	160	RRUS-11	140
(2) FD9R6004/2C-3L	160	RRUS-11	140
Platform Mount [LP 303-1]	160	DC6-48-60-18-8F	140
APXVSPP18-C-A20 w/ Mount Pipe	150	(2) 4' x 2" Pipe Mount	140
APXVSPP18-C-A20 w/ Mount Pipe	150	(2) 4' x 2" Pipe Mount	140
APXVSPP18-C-A20 w/ Mount Pipe	150	(2) 4' x 2" Pipe Mount	140
(3) ACU-A20-N	150	Platform Mount [LP 601-1]	140
(3) ACU-A20-N	150	OG-860/1920/GPS-A	50
(3) ACU-A20-N	150	Side Arm Mount [SO 701-1]	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 64.5%

Tower Engineering Professionals

Tower Engineering Professionals
3703 Junction Blvd.
Raleigh, NC 27603
Phone: (919) 661-6339
FAX: (919) 661-6350

Job: *Upper Stepney - TLC (876355)*			
Project: *TEP# 125912*			
Client: Crown Castle	Drawn by: Dustin T. Smith, E.I.	App'd:	
Code: TIA/EIA-222-F	Date: 08/09/12	Scale: NTS	
Path: C:\Users\dsmith\Desktop\TNX CHECKS\876355 LC5 final.eri		Dwg No. E-1	

tnxTower

Tower Engineering Professionals
3703 Junction Blvd.
Raleigh, NC 27603
Phone: (919) 661-6339
FAX: (919) 661-6350

Job	Page
Upper Stepney - TLC (876355)	1 of 13
Project TEP# 125912	**Date** 17:01:47 08/09/12
Client Crown Castle	**Designed by** Dustin T. Smith, E.I.

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
√ Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	191.500-172.460	19.040	3.083	18	15.500	20.460	0.188	0.750	A572-65 (65 ksi)
L2	172.460-127.753	47.790	4.500	18	19.282	31.600	0.313	1.250	A572-65 (65 ksi)
L3	127.753-83.083	49.170	5.833	18	29.815	42.190	0.438	1.750	A572-65 (65 ksi)
L4	83.083-40.457	48.460	7.083	18	39.847	52.590	0.500	2.000	A572-65 (65 ksi)
L5	40.457-0.000	47.540		18	49.727	62.000	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	15.739	9.113	269.950	5.436	7.874	34.284	540.256	4.557	2.398	12.789
	20.776	12.065	626.423	7.197	10.394	60.270	1253.670	6.033	3.271	17.445
L2	20.386	18.815	855.356	6.734	9.795	87.324	1711.837	9.409	2.844	9.099
	32.087	31.033	3838.018	11.107	16.053	239.087	7681.086	15.520	5.012	16.037
L3	31.425	40.794	4448.064	10.429	15.146	293.678	8901.981	20.401	4.477	10.234
	42.841	57.979	12769.382	14.822	21.433	595.795	25555.567	28.995	6.655	15.212
L4	42.019	62.444	12213.654	13.968	20.242	603.375	24443.379	31.228	6.133	12.266
	53.401	82.667	28338.539	18.492	26.716	1060.744	56714.366	41.341	8.376	16.752
L5	52.351	78.124	23918.500	17.476	25.261	946.836	47868.472	39.069	7.872	15.744
	62.956	97.600	46637.979	21.833	31.496	1480.759	93337.326	48.810	10.032	20.064

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 191.500-172.460				1	1	1		
L2 172.460-127.753				1	1	1		
L3 127.753-83.083				1	1	1		
L4 83.083-40.457				1	1	1		
L5 40.457-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8")	C	No	Inside Pole	191.500 - 0.000	24	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
******								
AVA7-50(1-5/8)	C	No	Inside Pole	160.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
******								
HB114-1-0813U4-M5J(1 1/4")	A	No	Inside Pole	150.000 - 0.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
******								
******								
LDF6-50A(1-1/4")	B	No	Inside Pole	140.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
FB-L98B-002-75000(3/8")	B	No	Inside Pole	140.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
WR-VG82ST-BRDA(5/8")	B	No	Inside Pole	140.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
2" Flexible Conduit	B	No	Inside Pole	140.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
******								
LDF4-50A(1/2")	A	No	Inside Pole	50.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
Step Pegs (5/8" SR) 7-in. w/30" step	C	No	CaAa (Out Of Face)	190.000 - 0.000	1	No Ice	0.029	0.000
						1/2" Ice	0.129	0.001
						1" Ice	0.229	0.002
						2" Ice	0.429	0.006
						4" Ice	0.829	0.021
Safety Line 3/8	C	No	CaAa (Out Of Face)	190.000 - 0.000	1	No Ice	0.037	0.000
						1/2" Ice	0.137	0.001
						1" Ice	0.238	0.001
						2" Ice	0.437	0.002
						4" Ice	0.838	0.004

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	191.500-172.460	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	1.170	0.387
L2	172.460-127.753	A	0.000	0.000	0.000	0.000	0.080
		B	0.000	0.000	0.000	0.000	0.061
		C	0.000	0.000	0.000	2.982	1.182
L3	127.753-83.083	A	0.000	0.000	0.000	0.000	0.161
		B	0.000	0.000	0.000	0.000	0.222
		C	0.000	0.000	0.000	2.979	1.286
L4	83.083-40.457	A	0.000	0.000	0.000	0.000	0.155
		B	0.000	0.000	0.000	0.000	0.212
		C	0.000	0.000	0.000	2.843	1.227

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L5	40.457-0.000	A	0.000	0.000	0.000	0.000	0.152
		B	0.000	0.000	0.000	0.000	0.201
		C	0.000	0.000	0.000	2.698	1.165

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	191.500-172.460	A	0.920	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	7.627	0.429
L2	172.460-127.753	A	0.898	0.000	0.000	0.000	0.000	0.080
		B		0.000	0.000	0.000	0.000	0.061
		C		0.000	0.000	0.000	19.439	1.289
L3	127.753-83.083	A	0.861	0.000	0.000	0.000	0.000	0.161
		B		0.000	0.000	0.000	0.000	0.222
		C		0.000	0.000	0.000	19.034	1.389
L4	83.083-40.457	A	0.808	0.000	0.000	0.000	0.000	0.155
		B		0.000	0.000	0.000	0.000	0.212
		C		0.000	0.000	0.000	17.530	1.320
L5	40.457-0.000	A	0.750	0.000	0.000	0.000	0.000	0.152
		B		0.000	0.000	0.000	0.000	0.201
		C		0.000	0.000	0.000	15.776	1.246

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	191.500-172.460	-0.078	0.045	-0.384	0.222
L2	172.460-127.753	-0.084	0.049	-0.444	0.256
L3	127.753-83.083	-0.085	0.049	-0.466	0.269
L4	83.083-40.457	-0.085	0.049	-0.468	0.270
L5	40.457-0.000	-0.085	0.049	-0.456	0.263

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lighting Rod 5/8" x 4'	C	None		0.000	191.500	No Ice	0.250	0.250	0.031
						1/2" Ice	0.664	0.664	0.034
						1" Ice	0.973	0.973	0.039
						2" Ice	1.494	1.494	0.059

tnxTower	Job	Page
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6339 FAX: (919) 661-6350	Upper Stepney - TLC (876355)	5 of 13
	Project TEP# 125912	Date 17:01:47 08/09/12
	Client Crown Castle	Designed by Dustin T. Smith, E.I.

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
(4) RR90-17-02DP w/ Mount Pipe	A	From Leg	4.000 0.000 2.500	30.000	191.500	4" Ice	2.683	2.683	0.137
						No Ice	4.593	3.319	0.034
						1/2" Ice	5.088	4.089	0.069
						1" Ice	5.578	4.784	0.114
						2" Ice	6.588	6.225	0.224
						4" Ice	8.731	9.308	0.557
(4) RR90-17-02DP w/ Mount Pipe	B	From Leg	4.000 0.000 2.500	30.000	191.500	No Ice	4.593	3.319	0.034
						1/2" Ice	5.088	4.089	0.069
						1" Ice	5.578	4.784	0.114
						2" Ice	6.588	6.225	0.224
						4" Ice	8.731	9.308	0.557
(4) RR90-17-02DP w/ Mount Pipe	C	From Leg	4.000 0.000 2.500	30.000	191.500	No Ice	4.593	3.319	0.034
						1/2" Ice	5.088	4.089	0.069
						1" Ice	5.578	4.784	0.114
						2" Ice	6.588	6.225	0.224
						4" Ice	8.731	9.308	0.557
(2) TMA	A	From Leg	4.000 -4.000 2.500	30.000	191.500	No Ice	0.681	0.450	0.013
						1/2" Ice	0.802	0.559	0.018
						1" Ice	0.932	0.677	0.025
						2" Ice	1.219	0.939	0.044
						4" Ice	1.896	1.566	0.111
(2) TMA	B	From Leg	4.000 -4.000 2.500	30.000	191.500	No Ice	0.681	0.450	0.013
						1/2" Ice	0.802	0.559	0.018
						1" Ice	0.932	0.677	0.025
						2" Ice	1.219	0.939	0.044
						4" Ice	1.896	1.566	0.111
(2) TMA	C	From Leg	4.000 -4.000 2.500	30.000	191.500	No Ice	0.681	0.450	0.013
						1/2" Ice	0.802	0.559	0.018
						1" Ice	0.932	0.677	0.025
						2" Ice	1.219	0.939	0.044
						4" Ice	1.896	1.566	0.111
T-Arm Mount [TA 602-3]	C	None		0.000	191.500	No Ice	11.590	11.590	0.774
						1/2" Ice	15.440	15.440	0.990
						1" Ice	19.290	19.290	1.206
						2" Ice	26.990	26.990	1.639
						4" Ice	42.390	42.390	2.503
***									
(2) LPA-80080/4CF w/ Mount Pipe	C	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice	3.110	7.482	0.034
						1/2" Ice	3.585	8.378	0.080
						1" Ice	4.022	9.152	0.137
						2" Ice	5.013	10.752	0.270
						4" Ice	7.153	14.168	0.651
(2) LPA-80063/6CF w/ mount pipe	B	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice	10.805	10.905	0.056
						1/2" Ice	11.582	12.282	0.148
						1" Ice	12.328	13.512	0.253
						2" Ice	13.753	15.647	0.492
						4" Ice	16.736	20.132	1.125
(2) LPA-80063/6CF w/ mount pipe	A	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice	10.805	10.905	0.056
						1/2" Ice	11.582	12.282	0.148
						1" Ice	12.328	13.512	0.253
						2" Ice	13.753	15.647	0.492
						4" Ice	16.736	20.132	1.125
BXA-70063-6CF-2 w/ Mount Pipe	A	From Centroid-Leg	4.000 -2.000 0.000	30.000	160.000	No Ice	7.969	5.801	0.042
						1/2" Ice	8.609	6.953	0.100
						1" Ice	9.216	7.819	0.170
						2" Ice	10.459	9.601	0.335

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-70063-6CF-2 w/ Mount Pipe	B	From Centroid-Leg	4.000 -2.000 0.000	30.000	160.000	4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.066 7.969 8.609 9.216 10.459 13.066	13.366 5.801 6.953 7.819 9.601 13.366	0.803 0.042 0.100 0.170 0.335 0.803
BXA-70063/4CF w/ Mount Pipe	C	From Centroid-Leg	4.000 -2.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.286 5.704 6.131 7.015 8.913	3.464 4.039 4.631 5.906 8.871	0.026 0.065 0.112 0.226 0.556
BXA-171063-12BF w/ Mount Pipe	A	From Centroid-Leg	4.000 2.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.971 5.521 6.036 7.091 9.359	5.228 6.389 7.261 9.046 12.817	0.040 0.083 0.137 0.271 0.671
BXA-171063-12BF w/ Mount Pipe	B	From Centroid-Leg	4.000 2.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.971 5.521 6.036 7.091 9.359	5.228 6.389 7.261 9.046 12.817	0.040 0.083 0.137 0.271 0.671
BXA-171063-8BF-2 w/ Mount Pipe	C	From Centroid-Leg	4.000 2.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.179 3.555 3.964 4.853 6.767	3.353 3.971 4.595 5.893 8.885	0.029 0.059 0.098 0.193 0.487
(2) FD9R6004/2C-3L	A	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L	B	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L	C	From Centroid-Leg	4.000 0.000 0.000	30.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
Platform Mount [LP 303-1]	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.660 18.870 23.080 31.500 48.340	14.660 18.870 23.080 31.500 48.340	1.250 1.481 1.713 2.175 3.101
***									
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.148 0.225 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.000 0.000 2.000	20.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.148 0.225 0.406 0.909

tnxTower	Job: Upper Stepney - TLC (876355)	Page: 7 of 13
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6339 FAX: (919) 661-6350	Project: TEP# 125912	Date: 17:01:47 08/09/12
	Client: Crown Castle	Designed by: Dustin T. Smith, E.I.

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.000 0.000 2.000	40.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.148 0.225 0.406 0.909
(3) ACU-A20-N	A	From Centroid-Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.078 0.121 0.173 0.302 0.665	0.136 0.189 0.251 0.400 0.802	0.001 0.002 0.004 0.012 0.045
(3) ACU-A20-N	B	From Centroid-Leg	4.000 0.000 2.000	20.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.078 0.121 0.173 0.302 0.665	0.136 0.189 0.251 0.400 0.802	0.001 0.002 0.004 0.012 0.045
(3) ACU-A20-N	C	From Centroid-Leg	4.000 0.000 2.000	40.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.078 0.121 0.173 0.302 0.665	0.136 0.189 0.251 0.400 0.802	0.001 0.002 0.004 0.012 0.045
800 EXTERNAL NOTCH FILTER	A	From Centroid-Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.770 0.890 1.018 1.301 1.970	0.375 0.465 0.563 0.787 1.337	0.011 0.017 0.024 0.045 0.114
800 EXTERNAL NOTCH FILTER	B	From Centroid-Leg	4.000 0.000 2.000	20.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.770 0.890 1.018 1.301 1.970	0.375 0.465 0.563 0.787 1.337	0.011 0.017 0.024 0.045 0.114
800 EXTERNAL NOTCH FILTER	C	From Centroid-Leg	4.000 0.000 2.000	40.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.770 0.890 1.018 1.301 1.970	0.375 0.465 0.563 0.787 1.337	0.011 0.017 0.024 0.045 0.114
Platform Mount [LP 601-1]	C	None		0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.470 33.590 38.710 48.950 69.430	28.470 33.590 38.710 48.950 69.430	1.122 1.514 1.905 2.689 4.255
8' Ladder	C	From Centroid-Leg	3.000 2.000 -2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.530 4.362 7.194 12.859 24.188	5.333 8.083 10.833 16.333 27.333	0.097 0.114 0.131 0.165 0.232
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0.000	0.000	150.000	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
***									
7770.00 w/ Mount Pipe	A	From Centroid-Leg	4.000 -6.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.101 0.155 0.287 0.665
P65-16-XLH-RR w/ Mount Pipe	A	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.141 0.216 0.393 0.886
7770.00 w/ Mount Pipe	B	From Centroid-Leg	4.000 -6.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.101 0.155 0.287 0.665
P65-16-XLH-RR w/ Mount Pipe	B	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.141 0.216 0.393 0.886
7770.00 w/ Mount Pipe	C	From Centroid-Leg	4.000 -6.000 0.000	10.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.101 0.155 0.287 0.665
P65-16-XLH-RR w/ Mount Pipe	C	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.141 0.216 0.393 0.886
(2) LGP21401	A	From Centroid-Leg	4.000 -6.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401	B	From Centroid-Leg	4.000 -6.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401	C	From Centroid-Leg	4.000 -6.000 0.000	10.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
RRUS-11	A	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.249 3.491 3.741 4.268 5.426	1.373 1.551 1.738 2.138 3.042	0.048 0.068 0.092 0.150 0.310
RRUS-11	B	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	No Ice 1/2" Ice 1" Ice	3.249 3.491 3.741	1.373 1.551 1.738	0.048 0.068 0.092

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS-11	C	From Centroid-Leg	4.000 2.000 0.000	30.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice	4.268 5.426 3.249 3.491 3.741	2.138 3.042 1.373 1.551 1.738	0.150 0.310 0.048 0.068 0.092
DC6-48-60-18-8F	C	From Centroid-Leg	4.000 3.000 0.000	30.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice	4.268 5.426 1.266 1.456 1.658	2.138 3.042 1.266 1.456 1.658	0.150 0.310 0.020 0.035 0.053
(2) 4' x 2" Pipe Mount	A	From Centroid-Leg	4.000 3.000 0.000	0.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice	2.093 3.098 0.785 1.028 1.281	2.093 3.098 0.785 1.028 1.281	0.095 0.215 0.029 0.035 0.044
(2) 4' x 2" Pipe Mount	B	From Centroid-Leg	4.000 3.000 0.000	0.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice	1.814 3.111 0.785 1.028 1.281	1.814 3.111 0.785 1.028 1.281	0.072 0.167 0.029 0.035 0.044
(2) 4' x 2" Pipe Mount	C	From Centroid-Leg	4.000 3.000 0.000	0.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice	1.814 3.111 0.785 1.028 1.281	1.814 3.111 0.785 1.028 1.281	0.072 0.167 0.029 0.035 0.044
Platform Mount [LP 601-1]	C	None		0.000	140.000	2" Ice 4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.814 3.111 28.470 33.590 38.710 48.950 69.430	1.814 3.111 28.470 33.590 38.710 48.950 69.430	0.072 0.167 1.122 1.514 1.905 2.689 4.255
***									
OG-860/1920/GPS-A	A	From Leg	2.000 0.000 2.000	0.000	50.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.144 0.233 0.333 0.567 1.167	0.144 0.233 0.333 0.567 1.167	0.002 0.004 0.006 0.016 0.054
Side Arm Mount [SO 701-1]	A	From Leg	1.500 0.000 0.000	0.000	50.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.850 1.140 1.430 2.010 3.170	1.670 2.340 3.010 4.350 7.030	0.065 0.079 0.093 0.121 0.177
***									

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice

Comb. No.	Description
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.5 - 172.46	39.745	27	2.015	0.006
L2	175.543 - 127.753	33.190	27	1.884	0.005
L3	132.253 - 83.0833	17.978	27	1.399	0.002
L4	88.9167 - 40.4567	7.679	27	0.845	0.001
L5	47.54 - 0	2.150	27	0.416	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.500	Lighting Rod 5/8" x 4'	27	39.745	2.015	0.006	19465
160.000	(2) LPA-80080/4CF w/ Mount Pipe	27	27.217	1.730	0.005	5260

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	APXVSPP18-C-A20 w/ Mount Pipe	27	23.661	1.617	0.004	4821
140.000	7770.00 w/ Mount Pipe	27	20.355	1.496	0.003	4450
50.000	OG-860/1920/GPS-A	27	2.363	0.439	0.000	4950

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.5 - 172.46	114.530	2	5.809	0.016
L2	175.543 - 127.753	95.663	2	5.430	0.016
L3	132.253 - 83.0833	51.851	2	4.034	0.006
L4	88.9167 - 40.4567	22.159	2	2.439	0.002
L5	47.54 - 0	6.205	2	1.202	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.500	Lighting Rod 5/8" x 4'	2	114.530	5.809	0.016	6878
160.000	(2) LPA-80080/4CF w/ Mount Pipe	2	78.466	4.986	0.013	1852
150.000	APXVSPP18-C-A20 w/ Mount Pipe	2	68.225	4.662	0.010	1695
140.000	7770.00 w/ Mount Pipe	2	58.700	4.315	0.008	1561
50.000	OG-860/1920/GPS-A	2	6.821	1.268	0.001	1717

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	191.5 - 172.46 (1)	TP20.46x15.5x0.188	19.040	0.000	0.0	39.0000	11.587	-1.782	451.880	0.004
L2	172.46 - 127.753 (2)	TP31.6x19.282x0.313	47.790	0.000	0.0	39.0000	29.883	-11.090	1165.430	0.010
L3	127.753 - 83.0833 (3)	TP42.19x29.815x0.438	49.170	0.000	0.0	39.0000	55.940	-20.666	2181.660	0.009
L4	83.0833 - 40.4567 (4)	TP52.59x39.847x0.5	48.460	0.000	0.0	39.0000	79.711	-33.850	3108.720	0.011
L5	40.4567 - 0 (5)	TP62x49.727x0.5	47.540	0.000	0.0	39.0000	82.771	-39.459	3228.050	0.012

tnxTower	Job	Page
	Upper Stepney - TLC (876355)	12 of 13
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6339 FAX: (919) 661-6350	**Project** TEP# 125912	**Date** 17:01:47 08/09/12
	Client Crown Castle	**Designed by** Dustin T. Smith, E.I.

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	191.5 - 172.46 (1)	TP20.46x15.5x0.188	67.159	14.5032	39.0000	0.372	0.000	0.0000	39.0000	0.000
L2	172.46 - 127.753 (2)	TP31.6x19.282x0.313	560.898	30.3730	39.0000	0.779	0.000	0.0000	39.0000	0.000
L3	127.753 - 83.0833 (3)	TP42.19x29.815x0.438	1523.600	32.9770	39.0000	0.846	0.000	0.0000	39.0000	0.000
L4	83.0833 - 40.4567 (4)	TP52.59x39.847x0.5	2603.467	31.6886	39.0000	0.813	0.000	0.0000	39.0000	0.000
L5	40.4567 - 0 (5)	TP62x49.727x0.5	2927.175	33.0313	39.0000	0.847	0.000	0.0000	39.0000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	191.5 - 172.46 (1)	TP20.46x15.5x0.188	4.259	0.3676	26.0000	0.028	0.007	0.0007	26.0000	0.000
L2	172.46 - 127.753 (2)	TP31.6x19.282x0.313	20.310	0.6796	26.0000	0.052	1.122	0.0296	26.0000	0.001
L3	127.753 - 83.0833 (3)	TP42.19x29.815x0.438	24.156	0.4318	26.0000	0.033	1.093	0.0115	26.0000	0.000
L4	83.0833 - 40.4567 (4)	TP52.59x39.847x0.5	27.996	0.3512	26.0000	0.027	1.063	0.0063	26.0000	0.000
L5	40.4567 - 0 (5)	TP62x49.727x0.5	29.216	0.3530	26.0000	0.027	1.053	0.0058	26.0000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	191.5 - 172.46 (1)	0.004	0.372	0.000	0.028	0.000	0.376 ✔	1.333	H1-3+VT ✔
L2	172.46 - 127.753 (2)	0.010	0.779	0.000	0.052	0.001	0.789 ✔	1.333	H1-3+VT ✔
L3	127.753 - 83.0833 (3)	0.009	0.846	0.000	0.033	0.000	0.855 ✔	1.333	H1-3+VT ✔
L4	83.0833 - 40.4567 (4)	0.011	0.813	0.000	0.027	0.000	0.824 ✔	1.333	H1-3+VT ✔
L5	40.4567 - 0 (5)	0.012	0.847	0.000	0.027	0.000	0.859 ✔	1.333	H1-3+VT ✔

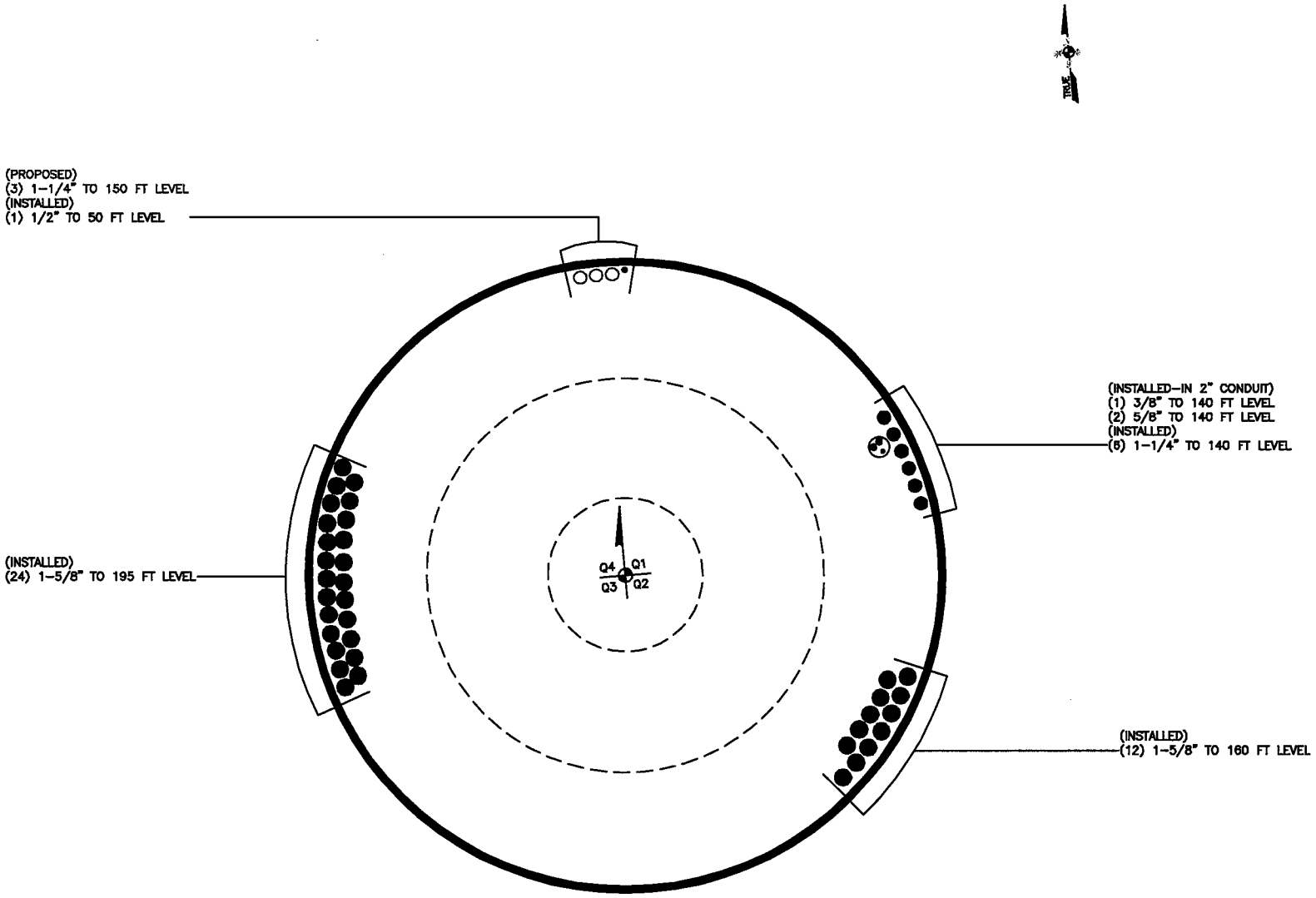
tnxTower	Job	Page
	Upper Stepney - TLC (876355)	13 of 13
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6339 FAX: (919) 661-6350	**Project** TEP# 125912	**Date** 17:01:47 08/09/12
	Client Crown Castle	**Designed by** Dustin T. Smith, E.I.

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	191.5 - 172.46	Pole	TP20.46x15.5x0.188	1	-1.782	602.356	28.2	Pass
L2	172.46 - 127.753	Pole	TP31.6x19.282x0.313	2	-11.090	1553.518	59.2	Pass
L3	127.753 - 83.0833	Pole	TP42.19x29.815x0.438	3	-20.666	2908.153	64.2	Pass
L4	83.0833 - 40.4567	Pole	TP52.59x39.847x0.5	4	-33.850	4143.924	61.8	Pass
L5	40.4567 - 0	Pole	TP62x49.727x0.5	5	-39.459	4302.990	64.5	Pass
							Summary	
						Pole (L5)	64.5	Pass
						RATING =	**64.5**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876355 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#: *876355*
Site Name: *Upper Stepney - TLC*
App #: *157251 Rev.1*

Pole Manufacturer:	*Other*

Reactions		
Moment:	4030	ft-kips
Axial:	52	kips
Shear:	32	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	71	in

Plate Data		
Diam:	77	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.20	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Both	
Groove Depth:	0.25	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	62	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	111.4 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	57.1% **Pass**	Fty*ASIF

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	46.2 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	77.0% **Pass**	Y.L. Length: 34.60

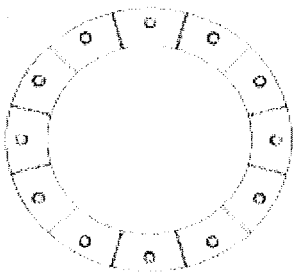
n/a

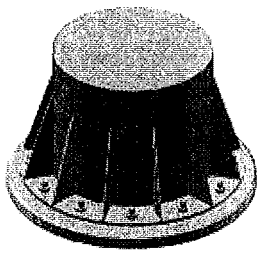
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *876355*
Site Name: *Upper Stepney - TLC*
App #: *157251 Rev.1*

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties

Concrete:

Pier Diameter = 7.5 ft
Concrete Area = 6361.7 in^2

Reinforcement:

Clear Cover to **Tie**= 4.00 in
Horiz. **Tie** Bar Size= 4
Vert. Cage Diameter = 6.67 ft
Vert. Cage Diameter = 80.00 in
Vertical Bar Size = 8
Bar Diameter = 1.00 in
Bar Area = 0.79 in^2
Number of Bars = 51
As Total= 40.29 in^2
A s/ Aconc, Rho: 0.0063 0.63%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

(3)*(Sqrt(f'c)/Fy:	0.0032	
200 / Fy:	0.0033	
IBC 1810.1.2:	0.0050	SDC D, E, or F
Governing:	0.0050	**0.50%**

ACI 10.8 and 10.9
Min As for Columns, Comp. Controlled, Shafts:
Min As: 0.0100 **1.00%**

Minimum Rho Check:
Actual Req'd Min. Rho: 0.50% Flexural
Provided Rho: 0.63% **OK**

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	4126	ft-kips (* **Note**)
Max. Service Shaft P:	52	kips
Max Axial Force Type:	Comp.	

(*) **Note:** Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads		
1.30	Mu:	5363.8	ft-kips
1.30	Pu:	67.6	kips

Material Properties

Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

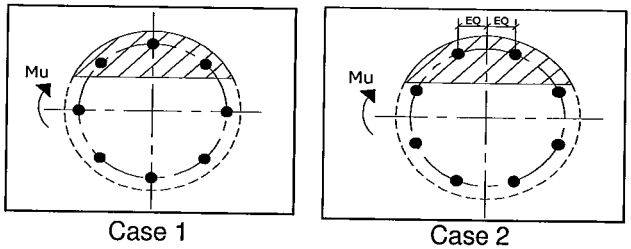
ACI 318 Code
Select Analysis ACI Code= 2008

Seismic Properties
Seismic Design Category = D
Seismic Risk = **High**

Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1 Case 2

Dist. From Edge to Neutral Axis: **7.72** in
Extreme Steel Strain, εt: **0.0300**
εt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

<-- Comment Box

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	12433.35	kips
at Mu=(ϕ=0.65)Mn=	16570.15	ft-kips
Max Tu, (φ=0.9) Tn =	2175.66	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	67.61	kips
Drilled Shaft Moment Capacity, φMn:	**7675.80**	ft-kips
Drilled Shaft Superimposed Mu:	**5363.80**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	69.88%

JOB:	125912		
SHEET NUMBER:	1	OF	2
CALCULATED BY:	MCK	DATE	8/8/2012
CHECKED BY:	DTS	DATE	8/9/2012

Pad and Pier Foundation for Monopole - TIA-222-F

Q_a, ALLOWABLE SOIL PRESS. (ksf)	12
NET or GROSS	NET
SOIL DENSITY (pcf)	110

F'c (ksi)	4
F'y (ksi)	60

Base Reactions LC1: Maximum Wind

M, MOMENT (k-ft)	4030.0
P_t, TOTAL DOWNLOAD (k)	52.0
H, HORIZONTAL SHEAR (k)	32.0

Base Reaction LC 2: Ice Wind + Ice

M (k-ft)	1036.0
P_t (k)	68.0
H (k)	8.0

Try:	L (ft.)	B (ft.)	t (ft.)	Soil depth to TOP of mat (ft.)	Soil depth to BOT. of mat (ft.)	Pier dia./width (ft.)	Pier Height, h (cu.ft.)	Pier Shape
	30	30	3	2	5	7.50	3.00	Square

W_m, Weight of Mat (k) =	405.0
W_p, Weight of Pier (k) =	25.3
W_s, WEIGHT OF SOIL (k) =	185.6

Concrete Vol. (cu ft) 106.25

CHECK DESIGN CRITERIA

CHECK STABILITY:	LC1	LC2		
Mst= P * (L/2) + (Vf+s * L/2) =	10019.1 k-ft	10259.1 k-ft		
Mot = M+H*(t+h) =	4222.0 k-ft	1084 k-ft		
SF =Mot/Mst =	2.37 > 1.5	9.46 > 1.5	Capacity:	63.2%

CHECK BEARING PRESSURE	LC1	LC2		
$P = P_t + W_f + W_s$ =	667.9 k	683.9 k		
e = M / P =	6.32 ft	1.58 ft		
L/6 =	5.00 ft	5.00 ft		
Width of Wedge, L' =	26.04 ft	30.00 ft		
0 Deg Wind: Qmax =	1.16 ksf	0.45 ksf		
45 Deg Wind: Qmax =	1.65 ksf	0.55 ksf	Capacity:	13.8%

JOB:	125912		
SHEET NUMBER:	2	OF	2
CALCULATED BY:	MCK	DATE	8/8/2012
CHECKED BY:	DTS	DATE	8/9/2012

CHECK ONE WAY SHEAR

Vu = 480.0 k
Vc = 1092.9 k

Capacity: 43.92%

CHECK TWO WAY SHEAR: PUNCHING + UNBALANCED MOMENT

v_u = 28.1 psi
φv_c = 189.7 psi

Capacity: 14.83%

CALCULATE REINFORCING REQUIRED

F'c = 4.0 ksi F'y = 60.0 ksi

Temp & Shrinkage reinforcing, $A_{s,\,temp}$ = 0.39 in^2/ft (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size = 8
Bar Spacing, c-c: 7.3
d = 31.5 in.
Mu= 357.1 in-k/ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.21 in^2/ft

Check, As = 1.31 in^2/ft

Capacity: 29.73%
As,temp controls

TOP REINFORCING

Bar Size = 8
Bar Spacing, c-c: 14.0
d= 31.5 in.
Mu= 620.6 in-k/ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.37 in^2/ft **As,req < As,t, Use As,t**
Bar Spacing, c-c:

Check, As = 0.68 in^2/ft **Top Reinforcing O.K.**

Capacity: 57.42%
As,temp controls

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT03XC365

Upper Stepney - TLC
474-480 Main Street
Monroe, CT 06468

March 4, 2013

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting

environmental | engineering | due diligence

March 4, 2013

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site: **CT03XC365 – Upper Stepney - TLC**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 474-480 Main Street, Monroe, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the cellular band is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 474-480 Main Street, Monroe, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

1) 2 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

6) The antenna mounting height centerline of the proposed antennas is **152 feet** above ground level (AGL)
7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT03XC365 - Upper Stepney - TLC
Site Addresss	474-480 Main Street, Monroe, CT, 06468
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	152	146	1/2 "	0.5	0	1386.9474	23.39162	2.33916%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	152	146	1/2 "	0.5	0	389.96892	6.577037	1.15997%
															Sector total Power Density Value:		3.499%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	152	146	1/2 "	0.5	0	1386.9474	23.39162	2.33916%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	152	146	1/2 "	0.5	0	389.96892	6.577037	1.15997%
															Sector total Power Density Value:		3.499%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	152	146	1/2 "	0.5	0	1386.9474	23.39162	2.33916%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	152	146	1/2 "	0.5	0	389.96892	6.577037	1.15997%
															Sector total Power Density Value:		3.499%

Site Composite MPE %	
Carrier	MPE %
Sprint	10.497%
T-Mobile	1.890%
Verizon Wireless	18.610%
AT&T	9.970%
Total Site MPE %	40.967%

EBI Consulting
environmental | engineering | due diligence

Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **10.497% (3.499% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **40.967 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803